

## CLAIM AMENDMENTS

1           1. (currently amended) A method for implementing  
2   internetworking of a set of Content Delivery Networks CDN (~~CDN1,~~  
3   ~~CDN2~~), the networks in said set being provided with respective  
4   caches, respective Directory Name Service or Domain Name Servers  
5   ~~[[DNS]]~~ and respective content distribution systems to respective  
6   clients, as well as interface components ~~[[CIG]]~~ susceptible of  
7   being each associated ~~[[to]]~~ with a respective network ~~[[CDN1]]~~  
8   in said set of networks and co-operating with at least one similar  
9   interface component ~~[[CIG]]~~ associated ~~[[to]]~~ with another  
10   network ~~[[CDN2]]~~ in said set of networks, the method comprising  
11   the steps of:

12           collecting in said interface components ~~[[CIG]]~~  
13   routing-content-related data related to the association of said  
14   contents and the caches ~~[[which]]~~ that contain them; and

15           transferring ~~(DNSI)~~ said routing data obtained by  
16   processing the content-related data from at least one of said  
17   interface components ~~[[CIG]]~~ to the Directory Name Service or  
18   Domain Name Server ~~[[DNS]]~~ of the respective network so as to  
19   update tables of the Directory Name Server or Domain Name Server  
20   that are different from the at least one interface component,  
21   whereby access by the client of said respective network of the  
22   contents of the networks in said set of CDN ~~[[CDN1, CDN2]]~~ is  
23   implemented through the Directory Name Service or Domain Name  
24   Server ~~[[DNS]]~~ of said network.

25           2. (currently amended) The method according to claim 1  
26 wherein the following steps are performed by at least one of said  
27 interface components `[[CIG]]`:

28           ~~receiving~~ to receive data on the state of the caches of  
29 and/or the contents of the respective network,

30           ~~determining~~ to determine whether said contents require an  
31 updating or not, and

32           ~~managing~~ to manage said updating by performing at least  
33 one step in the following group comprising:

34           editing the respective database,

35           editing the respective Directory Name Service tables,

36           editing the respective log file archive, and

37           forwarding an update request message to said at least one  
38 similar component.

1           3. (currently amended) The method according to claim 2  
2 wherein said interface components `[[CIG]]` communicate via a CNAP  
3 protocol.

1           4. (currently amended) A system comprising a set of  
2 internetworked Content Delivery Networks CDN `[[CDN1, CDN2]]` ,  
3 the networks in said set being provided with respective caches,  
4 respective Directory Name Service or Domain Name Server `[[DNS]]`  
5 and respective content distribution systems to respective clients,  
6 as well as interface components `[[CIG]]` susceptible of being each  
7 associated `[[to]]` with a respective network `[[CDN1]]` in said set

8 of networks and co-operating with at least one similar interface  
9 component associated [[to]] with another network [[(CDN2)]] in said  
10 set of networks, said interface components [[(CIG)]] being  
11 configured to collect routing content-related data related to the  
12 association of said contents and the caches [[which]] that contain  
13 them, obtained by processing the content-related data, at least one  
14 of said interface components [[(CIG being configured to transfer  
15 [[(DNSI)]] said routing data to the Directory Name Service or  
16 Domain Name Server [[(DNS)]] of the respective network, so as to  
17 update tables of the Directory Name Service or Domain Name Server  
18 that are different from the at least one interface component so  
19 that access by the client of said respective network to the  
20 contents of the networks in said set of CDN [[(CDN1, CDN2)]] is  
21 implemented through the Directory Name Service or Domain Name  
22 Server [[(DNS)]] of said network.

1 5. (currently amended) The system according to claim 4  
2 wherein the at least one of said interface components [[(CIG)]]  
3 comprises:

4 a module for receiving data on the state of the cache  
5 and/or of the contents of the respective network,

6 a module for determining whether said contents require an  
7 updating or not, and

8 a module for managing said updating by performing at  
9 least one step in the following group comprising:

10 editing the respective database,

11 editing the respective Directory Name Service tables,  
12 editing the respective log file archive, and  
13 forwarding an update request message to said at least one  
14 similar component.

1 6. (currently amended) The system according to claim 5  
2 wherein said interface components [(CIG)] communicate via a CNAP  
3 protocol.

1 7. (currently amended) [(The)] An interface component  
2 [(CIG)] for implementing Content Delivery Network CDN [(CDN1,  
3 CDN2)] internetworking, the networks [(CDN1, CDN2)] being  
4 comprised in a set and being provided with respective caches,  
5 respective Directory Name Service or Domain Name Servers [(DNS)]  
6 and respective content distribution systems to respective clients,  
7 said interface component [(CIG)] being susceptible of being  
8 associated [(to)] with a respective network [(CDN1)] in said set  
9 of networks and co-operating with at least one similar interface  
10 component associated [(to)] with another network [(CDN2)] in said  
11 set of networks, said interface component [(CIG)] being  
12 configured to collect content-related routing data related to the  
13 association of said contents and the caches [(which)] that contain  
14 them, said interface component [(CIG)] comprising:

15 at least a first interface module [(RRI)] for  
16 exchanging data with said at least one similar component,

17           a second interface module `[[DNSI]]` for interfacing with  
18 the Directory Name Service `[[DNS]]` of the respective network, and  
19           a core `[[RRP]]` for collecting and processing the data  
20 received by the interface component and routing `[[the]]` respective  
21 requests, whereby said interface component `[[CIG]]` is susceptible  
22 of transferring `[[said]]` routing data obtained by processing the  
23 content-related data to the Directory Name Service or Domain Name  
24 Server `[[DNS]]` of the respective network via said second  
25 interface module `[[DNSI]]`, the routing data being used to update  
26 tables of the Directory Name Service or Domain Name Server that are  
27 different from the interface component.

1           8. (currently amended) The interface component according  
2 to claim 7 wherein the interface component is configured to be  
3 controlled by a monitoring system and comprises:

4           a third interface module `[[DII]]` for retrieving data on  
5 the availability of contents from the content distribution system  
6 on the respective network, and

7           a fourth interface module `[[MII]]` for interacting with  
8 said monitoring system.

1           9. (currently amended) The interface component according  
2 to claim 7 wherein said core [[(RRP)]] comprises:

3           a module for receiving data from said interface modules  
4 [[(RRI, DNSI, DII, MII)]] and extracting data on the status of the  
5 caches and/or of the contents of the respective network therefrom,  
6 a module for determining whether said contents require an updating  
7 or not, and

8           a module for managing the updating by performing at least  
9 one step in the following group comprising:

10           editing the respective database,  
11           editing the respective Directory Name Service tables,  
12           editing the respective log file archive, and  
13           forwarding an update request message to said at least one  
14 similar interface component.

1           10. (currently amended) The interface component  
2 according to claim 9 wherein said at least [[a]] first interface  
3 module [[(RRI)]] is configured to communicate with a first  
4 interface module of said at least one similar component via CNAP  
5 protocol.

1           11. (currently amended) The interface component  
2 according to claim 10 wherein said at least a first interface  
3 module [[(RRI)]] is configured to translate from said CNAP protocol  
4 to a format [[which]] that can be understood by a core [[(RRP)]] of  
5 said at least one similar interface component.

6           12. (currently amended) The interface component  
7 according to claim 11 wherein said communication between said first  
8 interface module  $[(RRI)]$  and a first interface module  $[(RRI)]$   
9 of said at least one similar interface component comprises the  
10 transmission of signals indicating quantities from the following  
11 group comprising:

12           ID of the network in which said interface component is  
13 associated,

14           IP address of the computer hosting the local interface  
15 component,

16           INFORMATION DISCLOSURE STATEMENT of interconnected  
17 systems via said interface component and said at least one similar  
18 interface component,

19           IP addresses of the remote interface components of said  
20 internetworking systems,

21           level of confidences of the internetworking network  
22 connection, and

23           at least one identification of physical characteristics,  
24 such as the geographical distance of the connection between said  
25 interfacing component and said similar interface component.

1           13. (currently amended) The interface component  
2 according to claim  $[[12]]$  7 wherein said first interface module  
3  $[(RRI)]$  is configured to exchange information with said at least  
4 one similar interface component via an IP transportation protocol  
5 such as the TCP protocol.

1           14. (currently amended) The interface component  
2 according to claim [[12]] 7 wherein said core [[(RRP)]] and said  
3 first interface module [[(RRI)]] are configured to exchange signals  
4 indicating quantities selected from the following group:  
5           URL identifying the content to which the message refers,  
6           IP address of the cache [[which]] that distributes the  
7                                   content,  
8           ID of the Content Delivery Network to which the cache  
9                                   belongs,  
10          cache state,  
11          content state in the cache, and  
12          life time of routing data.

1           15. (currently amended) The interface component  
2 according to claim 8 wherein said fourth interface module [[(MII)]]  
3 is configured to transfer to said core [[(RRP)]] signals indicating  
4 quantities from the following group comprising:  
5           IP address of the cache to which the message refers,  
6           percentage of CPU used by the cache,  
7           percentage of RAM used by the cache,  
8           percentage of disc used by the cache, and  
9           percentage of users connected in relation to the maximum  
10          capacity of the involved cache service.



1           16. (currently amended) The interface component  
2 according to claim 8 wherein said third interface module [[(DII)]]  
3 is configured to send to said core [[(RRP)]] signals indicating  
4 quantities from the following group comprising:

5           URL identifying the content to which the message refers,  
6           list of IP addresses of the caches of said content,  
7           level of confidence of said content,  
8           level of availability of said content,  
9           cache state,  
10          life time of routing data.

1           17. (currently amended) The interface component  
2 according to claim 16 wherein said quantity identifying the level  
3 of confidence of the content is susceptible of assuming distinct  
4 levels corresponding to at least one first level of confidence in  
5 the group comprising:

6           a first level of confidence indicating that the contents  
7 may be exchanged by all networks in said set of networks, and

8           a second level of confidence indicating that the contents  
9 may be exchanged on by a selectively determined subset of networks  
10 in said set of networks.

1           18. (currently amended) The interface component  
2 according to claim [[1]]7 wherein second interface module  
3 [[(DNSI)]] is configured to communicate with the Directory Name  
4 Server [[(DNS)]] to update respective tables on the basis of  
5 signals indicating quantities from the following group comprising:  
6           [[(-)] ID of the operation to be carried out on the table  
7 of said server, such as addition or deletion,  
8           type of register,  
9           name of the domain to which the message refers,  
10          entire URL of the content to which the message refers,  
11          IP address of the best cache to serve said domain, and  
12          life time of the register.

1           19. (currently amended) The interface component  
2 according to claim [[18]] 7 wherein said core module comprises a  
3 memory hosting a data structure containing information on the state  
4 of the respective Content Delivery Network and similar  
5 internetworking networks.